STOEL RIVES LLP
ATTORNEYS AT LAW

900 S.W. Fifth Avenue, Suite 2600
Portland, Oregon 97204
main 503.224.3380
fax 503.220.2480
www.stoel.com

THOMAS R. WOOD
Direct (503) 294-9396
trwood@stoel.com

November 3, 2006

BY EMAIL AND BY MAIL

Amy Zimpfer
Associate Director, Air Division
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

Re: Cabrillo Port Project
Response to Information Request Dated October 13, 2006

Dear Amy:

Renee Klimczak is in receipt of your October 13, 2006 letter requesting that BHP Billiton LNG International Inc. ("BHP") respond to several questions regarding its Cabrillo Port project. Renee requested that I draft this letter in response. We have organized the letter in the order of your questions.

Question 1: *EPA stated that Cabrillo Port is subject to California's Airborne Toxic Control Measure for Stationary Compression Ignition Engines (the "ATCM") and requests that BHP amend the application to identify engines that comply with that standard.*

Answer 1: BHP acknowledges that it is subject to the ATCM, but disagrees that this includes the requirement to comply with the 0.01g/BHP-hr PM_{10} emission limit. As EPA recently noted, the purpose of the ATCM was to reduce the general public's exposure to diesel particulate matter from stationary diesel fueled engines and there is minimal potential for exposure to the public from sources that operate offshore. 71 Fed. Reg. 35804 (June 22, 2006). This was explicitly recognized by CARB in drafting exemptions for the offshore sources of which it was aware at the time the rule was developed. Specifically, the rule exempts engines from the ATCM that are located on either San Nicolas Island (17 CCR 93115(c)(9) or on any OCS platform (17 CCR 93115(c)(10). As noted in relation to San Nicolas Island, this exemption was subject to future withdrawal if, in the future, the general public were allowed to use the island. The Staff Report for the rulemaking explains the exemptions, stating "the exemptions are provided to address the specific situations where the impact of the emissions on nearby receptors is considered minimal and it is not practical to comply with the requirements of the proposed ATCM due to high costs

or technical issues associated with controlling diesel PM emissions." September 2003 Staff Report at 57. Cabrillo Port faces the same considerations as faced on San Nicolas Island and the OCS platforms. The ATCM is based on a member of the public residing nearby to the engine for 70 years. Staff Report at 4. This scenario will not happen offshore. No member of the public resides within 14 miles of Cabrillo Port. By federal law no member of the general public is allowed within 500 meters of the FSRU. In addition, because the FSRU engines are installed in a marine environment, the manufacturer will not guarantee them to emit at levels in compliance with the ATCM. Therefore, the FSRU engines are appropriately exempted from the substantive requirements of the ATCM based on the engines being located offshore and far from any human receptors. We recognize that the reporting requirements of (e)(4) may apply.

Question 2: *EPA requests that BHP clarify the number of freefall lifeboats and emergency fire pump/generators as the December 2005 application lists 3 freefall lifeboats and 4 emergency fire pump/generators while the table "FSRU 2" in the current emission spreadsheets identifies 1 freefall lifeboats and 2 emergency fire pump/generator.*

Answer 2: BHP recognizes the confusion underlying the question although it believes that both documents are right in their own way. The December 2005 application correctly identifies the number of individual pieces of equipment, i.e., 3 freefall lifeboats and 4 emergency fire pump/generators. This equipment count was also identified in the answer to the first question in EPA's October 2, 2006 information request. The count that appears in table FSRU 2 of the spreadsheets reflects the equipment type count. Because the lifeboats, emergency fire pumps and emergency generators will be exercised a specific number of hours that is capped by the permit, there is no need from an emission calculation point of view to account for the number of individual units. However, there is a different emission profile for each of the equipment types. As a result, in building the spreadsheets BHP reflected the number of emission profiles attributable to the emergency equipment. We recognize that this is inconsistent with the way that the non-emergency equipment is portrayed and so understand and apologize for the confusion. However, because total emergency generator exercising is limited to 100 hours per year, total freefall lifeboat exercising is limited to 50 hours per year and total firewater pump exercising is limited to 100 hours per year, the number of actual units is not relevant to the emission calculations.

The following table identifies the quantity of each type equipment that is proposed for Cabrillo Port.

Qty.	Description	Rating (each)	Fuel
3	Wartsila 9L50DF Main Generators	8250 KW	Gas / CA Diesel
1	Wartsila 9L50DF Backup Generator	8250 KW	Gas / CA Diesel
8	Sub-X Submerged Combustion Vaporizers	115 mmBTU/hr	Gas Only
4	Emergency Fire Pump / Generator	600 / 4200 KW	CA Diesel
3	Freefall Lifeboat	56 KW	CA Diesel
1	LNG Carrier (Pumping Only)	3733 KW	Gas/CA Diesel
1	Diesel Fuel Storage Tank	145,000 gallons	CA Diesel
1	Inert Gas Generator	67.17 mmBTU/hr	Gas only

Question 3: *Please calculate fugitive emissions from the FSRU.*

Answer 3: The only potential fugitive emissions sources on the FSRU are the valves, connections and flanges in the gas handling system. The FSRU is designed to minimize these potential emission points through the use of welded connections and a limited number of valves and flanges in the gas handling system. The valves and flanges that are necessary will be designed and installed utilizing state-of-the-art technology to minimize gas leaks. There are obvious safety implications associated with any type of gas leak. As described in Section 2.2.3 of the December 2005 application (page 2-7), the FSRU has a comprehensive Safety Integrity System for detecting and addressing gas leaks. This ensures that if a leak were to occur, it would be expeditiously addressed. Furthermore, the composition of the natural gas throughput will be primarily composed of methane and ethane. Neither gas is regulated as a VOC. There will only be trace amounts of reactive organic component (C3+) in the gas stream. Therefore, even if a leak does occur, an immeasurably small amount of VOC would be emitted before the leak was identified and fixed. As this would be considered an equipment malfunction against which numerous precautions are taken to avoid it occurring, BHP cannot quantify the emissions.

Question 4: *Please provide additional/updated support for the position identified in the December 2005 application for the conclusion that ultra-low NOx burners in the SCVs is BACT.*

Answer 4: EPA's overarching question breaks down into several specific sub-questions. Some of those sub-questions are not capable of answering in the manner requested. Others are capable of response, but preparing the responses will take several more weeks of effort by BHP's

engineering team and outside consultants. We have identified each of the sub-questions below and either respond as to when we anticipate having an answer or identify why the question cannot reasonably be answered.

> **Question 4a**: *Please provide further evidence in support of BHP's claims regarding the effect of the FSRU's movement on SCR systems for the SCVs.*

Answer 4a: BHP has engaged its engineering staff and outside consultants with extensive experience with SCVs, SCR and marine engineering. BHP anticipates submitting the response to this question by early December.

> **Question 4b**: *Please provide documentation and describe the erratic exhaust profile of the SCVs and explain the direct relationship between that profile and the size of the SCR unit. BHP should also provide EPA with an analysis which considers whether a slightly smaller SCR system could be designed to address the space limitations and other technical issues while achieving a reduced, yet effective, level of control.*

Answer 4b: The answer to this question will be included in our December response.

> **Question 4c**: *EPA understands that Distrigas did experience problems with catalyst fouling due to sodium present in the chemical it originally used to maintain the pH in the water bath and that BHP has proposed to use the same material. Information presented to EPA indicates that Distrigas overcame this problem by using ammonia as the neutralizing agent. EPA understands that ammonia may not be appropriate for use on the FSRU. However, EPA requests that BHP identify and consider the use of alternative neutralizing agents that would not poison the SCR catalyst.*

Answer 4c: The BACT process requires that BHP consider the use of demonstrated technologies. EPA has repeatedly stated that a source "would not be required to experience extended time delays or resource penalties to allow research to be conducted on a new technique." New Source Review Workshop Manual at B.18. The experimentation necessary to develop a neutralizing system that will not react with the SCR catalyst is a more involved analysis, requiring bench scale testing, than is appropriate for a BACT analysis. BHP could guess at an appropriate neutralizing agent and find, like Distrigas, that it guessed wrong. Absent identification of a specific catalyst and bench scale testing, BHP cannot answer this question.

Question 4d: *EPA requests that BHP provide a more detailed discussion of the physical and technical issues associated with using a duct burner for raising the SCV gas exit temperature from 70°F to the roughly 700 °F needed for SCR to work and the potential for using one in conjunction with a gas-gas heat exchanger or other means of mitigating the safety risks.*

Answer 4d: The answer to this question will be included in our December response.

Question 4e: *EPA requests that BHP revise the BACT analysis using 40 ppmv NOx as the uncontrolled SCV emission rate.*

Answer 4e: BHP does not understand the basis for this request. The SCVs will emit 20 ppmv as the result of inherent design of the equipment. In other words, the SCV burners are designed to be inherently lower polluting. EPA notes in the NSR Workshop Manual that:

> "When calculating the cost effectiveness of adding post process emissions controls to inherently lower polluting processes, baseline emissions may be assumed to be the emissions from the lower polluting process itself. In other words, emission reduction credit can be taken for use of inherently lower polluting processes."

New Source Review Workshop Manual at B.37. Therefore, EPA's request to use 40 ppmv NOx as the baseline emission rate for costing purposes is directly opposite of EPA's formal position on the matter. As a result, we request the ability to proceed using our inherently lower emission rate as the baseline in our cost effectiveness assessment.

Question 4f: *EPA requests that BHP provide a detailed analysis of the space onboard the FSRU and its ability to accommodate SCR units for the SCVs as well as support for the estimated cost of extending the FSRU to accommodate SCR units for the SCVs.*

Answer 4f: The answer to this question will be included in our December response.

Question 4g: *EPA requests that BHP provide written estimates from BD Heat and two additional manufacturers for SCR installations on SCVs.*

Answer 4g: BHP believes that this request is unreasonable. EPA's guidance on BACT states that "EPA does not consider a vendor guarantee alone to be sufficient justification that a control option will work." New Source Review Workshop Manual at B.20. Vendors cannot be made to

provide quotes and the less they believe their technology will work for a particular application the less likely they are to put the time and money into preparing a serious written estimate. EPA recognizes this in the NSR Workshop Manual where it is specifically noted that specific bid estimates may not be available at the permitting stage. Id. at B.35.

> **Question 4h**: *EPA requests that BHP explain its basis for concluding that it would require 8 additional staff persons (4 per shift) to maintain SCR units were they to be installed on the SCVs.*

Answer 4h: As noted at page 24 of Appendix G of the December 2005 application, BHP spoke with Distrigas management on May 3, 2005 regarding their experience and lessons learned in applying SCRs to SCVs. As stated in the application, Distrigas informed the company that most of its 12 person maintenance crew's time is spent maintaining the SCR units. These SCR units only control emissions from approximately 600 mmcf/day of sendout, as opposed to Cabrillo Port's proposed 800 mmcf/day average sendout. Therefore, the significant increase in gas being processed would result in a significant increase in airflow and, therefore size and/or number of control devices. This strongly suggests that the maintenance demands posed by adding SCRs to the Cabrillo Port SCVs would be proportionately higher than what was needed by Distrigas. There is also good reason to believe that more staff time would be required in a stressful marine environment where equipment access is difficult and work is slowed by the reality of being 14 miles from shore. Nonetheless, BHP assumed that only 8 staff would be needed to operate and maintain the SCR system. This appears to be a conservative assumption given the Distrigas experience and that this would be the first use of SCR in a marine environment for SCVs.

> **Question 4i**: *EPA requests that BHP provide information documenting the risk of explosion in a catalytic oxidizer from a methane tube leak and whether that risk could be mitigated to acceptable levels.*

Answer 4i: The answer to this question will be included in our December response. However, we note that oxidation catalysts have not been installed on SCVs at any facility in the country. At Distrigas the state concluded that they were not safe, a conclusion shared by the permitting authority for the Cove Point project.

I trust that this letter fully and completely answers EPA's questions or identifies a schedule for our response. Please contact me immediately if this is not the case.

Sincerely,

Thomas R. Wood

cc: Renee Klimczak
Rick Abel
Margaret Alkon
Joe Lapka